

Message

From: Strynar, Mark [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=5A9910D5B38E471497BD875FD329A20A-STRYNAR, MARK]
Sent: 1/28/2020 6:47:56 PM
To: Risen, Amy J [Amy.Risen@ncdenr.gov]
Subject: FW: Consent Order Paragraph 11.a - lab standards
Attachments: ATT00001.txt; PFAS in wells eluting before PFMOAA for Risen.xlsx

Amy,

As an FYI I can say in some of the site monitoring wells located on the Chemours property I can confirm we can easily see MTP and the C3 acid (PPF acid) in the ground water. Both elute before PFMOAA, indicating potential for faster mobility in soil and GAC columns. I should also say I can easily see trifluoro acetic acid (TFA) in those samples as well. For the DFSA and MMF it is hard to say as they can exist as either a monoprotic or diprotic version. In both instances if in the diprotic version it would be below the mass range (m/z 100) I usually monitor for on my instrument. I can see a response for both in the M-H form, but I cant confirm this and the response in that form is quite low. There are other species in the water but thus far none that are smaller (more mobile possibly) than PFMOAA.

See the attached. The PFMOAA in the samples shown here was also one of the smaller peaks. This is not true for all samples. Just picked a couple to show you.

We can do more work and get you additional data soon.

Mark

From: Garon, Kevin P <Kevin.Garon@chemours.com>
Sent: Thursday, January 23, 2020 5:58 PM
To: Culpepper, Linda <linda.culpepper@ncdenr.gov>
Cc: Leung, Lam-Wing H <LAM.H.LEUNG-1@chemours.com>; Martin, Allen D <Allen.Martin@ncdenr.gov>; Sivertsen, Scott <Sivertsen.Scott@epa.gov>; Strynar, Mark <Strynar.Mark@epa.gov>; Jannie Shaw-Busby <jls@gel.com>; Risen, Amy J <amy.risen@ncdenr.gov>; Messenger, Courtney <courtney.messenger@chemours.com>; Sheila Holman <sheila.holman@ncdenr.gov>; Scott, Michael <michael.scott@ncdenr.gov>; michael.abraczinskas@ncdenr.gov
Subject: RE: Consent Order Paragraph 11.a - lab standards

Ms. Culpepper,

Thank you for your note attached below. We are in the process of preparing the standards you listed in methanol solution (pH adjusted to 8-10) and we expect to have them shipped out by the end of February.

As for the 4 "early eluters" (DFSA, MMF, MTP & PPF Acid), we are in the final stage of development of a separate analytical method to analyze for these analytes as well as PMPA and PEPA (with a RL of less than 10ppt for all 6 analytes). We expect to have this method finalized by mid-February and we will provide the final method to DEQ.

Thanks,
Kevin

From: Culpepper, Linda [mailto:linda.culpepper@ncdenr.gov]
Sent: Thursday, January 16, 2020 2:58 PM
To: Garon, Kevin P <Kevin.Garon@chemours.com>
Cc: Leung, Lam-Wing H <LAM.H.LEUNG-1@chemours.com>; Martin, Allen D <Allen.Martin@ncdenr.gov>; Sivertsen,

Scott <Sivertsen.Scott@epa.gov>; Strynar, Mark <Strynar.Mark@epa.gov>; Jannie Shaw-Busby <jls@gel.com>; Risen, Amy J <Amy.Risen@ncdenr.gov>; Messenger, Courtney <courtney.messenger@chemours.com>; Holman, Sheila <sheila.holman@ncdenr.gov>; Scott, Michael <michael.scott@ncdenr.gov>; Abraczinskas, Michael <michael.abraczinskas@ncdenr.gov>

Subject: ?Consent Order Paragraph 11.a - lab standards

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Kevin, following up on the lab standards not provided to date.

List of 7 lab standards from the chemicals on Table 3+ which have not been provided to date:

PFMOAA
PF02HxA
Byproduct 1 (BP1)
Byproduct 2 (BP2)
PFECA B
PFECA G
PES

List of 4 lab standards from the chemicals on Table 3+ which also have not been provided to date and Chemours indicates *"Analysis for these compounds is currently discontinued due to problematic performance (chromatographic retention and mass spectral interferences) in current T3+ method."*:

DFSA
MMF
MTP
PPF Acid

These lab standards need to be provided per paragraph 11.a. conditions and along with an explanation of the decision regarding the 4 chemicals indicated as currently discontinued from analysis.
Please let us know when we can expect the lab standards and explanation.

linda

Linda Culpepper
Director, Division of Water Resources
linda.culpepper@ncdenr.gov
919-707-9014

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Subject: RE: ?RE: ?RE: [External] RE: ?Standards

Thank you for the information, Lam.

Linda

Linda Culpepper
Director, NC DEQ Division of Water Resources

Email: linda.culpepper@ncdenr.gov
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We had shipped selected "Table 3+ standards" in methanol (pH adjusted to ~10) to DEQ (Allen Martin), EPA (Mark Strynar & Scott Sivertsen), GEL lab (Jannie Shaw-Busby), Enthalpy Lab & Professor Ralph Mead (UNC-Wilmington) and they should be delivered either today or tomorrow. The selected standards are only available from Chemours as other standards are now commercially available. We are in the process of purchasing them from the vendors and I encourage others to do so as well and I understand that Mark Strynar had purchased some from them previously. As we have limited quantities of these other standards at the moment, we plan on getting more of these prepared internally if the external vendors cannot supply them and these should be available early next year. Of course, if we receive them from external vendors, we'll be sharing them with you.

I have attached the list of standards with the links to the vendors info for purchase. We have also sent the same sets of standards to our external testing labs (Eurofins Test America and Lancaster Labs) such that they'll be using these standards for calibration and analysis purposes going forward.

Please do let me know if more info is needed.

Lam

Lam Leung, Ph.D.
Technical Fellow
lam.h.leung-1@chemours.com
302-353-5218 o
302-985-1655 m
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Experimental Station 402/5323
200 Powder Mill Road
Wilmington, DE 19803
USA



From: Culpepper, Linda [<mailto:linda.culpepper@ncdenr.gov>]

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Kevin,

The Consent Order indicates in paragraph 11.a "... Chemours shall (a) provide DWR with all known analytical test methods and lab standards for all PFAS in all process and non-process wastewater and stormwaters at the Facility...". It is my understanding that Chemours will provide all lab standards, which is not dependent on commercial availability.

Linda

Linda Culpepper
Director, NC DEQ Division of Water Resources

Email: linda.culpepper@ncdenr.gov
Phone: 919-707-9014

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Hi Linda,

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Allen, Scott, Mark & Jannie,

Can you please provide me with your shipping info so we'll send these standards to the correct address?

Thanks and Best regards,
Lam

Lam Leung, Ph.D.

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Subject: ?RE: [External] RE: ?Standards

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Thank you, Lam. Including Mark, as he shared that he was reviewing your data.

Linda

Linda Culpepper

Director, NC DEQ Division of Water Resources

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Cc: Martin, Allen D <Allen.Martin@ncdenr.gov>; Sivertsen, Scott <Sivertsen.Scott@epa.gov>; Garon, Kevin P <Kevin.Garon@chemours.com>

Subject: [External] RE: ?Standards

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Hi Linda,

I sent the same email to Scott and I apologize for not copying you on this:

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1. pH of the methanol will be adjusted to ~8-9 to minimize/avoid any possible formation of the corresponding esters.
2. Note that due to the relative volatile nature of methanol, care must be taken when working with these standards to avoid any loss of the sample.

We will certainly welcome your suggestion for other solvent to use instead of methanol. Please let us know.

Very best Regards,
Lam

Lam Leung, Ph.D.

Technical Fellow

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Subject: ?Standards

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Kevin,

As stated in my letter of August 14, "Chemours must use a solvent based system" when providing lab standards for DEQ and EPA use.

We understand your concerns regarding stabilization. We are open to continuing our dialogue on that issue and reviewing any additional information you wish to submit. However, at this time, Chemours is directed to provide standards in a solvent.

Linda

Linda Culpepper
Director, NC DEQ Division of Water Resources

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Subject: [External] Standards

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Hello Allen and Scott,

In my last meeting a few weeks back with Ms. Linda Culpepper, she indicated that she was still expecting Chemours to prepare and provide standards in a solvent. I believe Lam responded to both of you gentlemen and discussed on a teleconference our concern with making standards in a solvent due to the possibility/probability of some of the compounds changing due to esterification (and I have just exhausted my knowledge of chemistry so forgive me if I am not being clear).

What are your thoughts on this? We are a bit stumped on how to proceed. Lam is still working on the stabilization study to indicate the stability of our standards in water. I just am not sure what or if we need to be doing something as Ms. Culpepper has indicated to me that the request to prepare standards in a solvent still stands.

Thanks,
Kevin

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Kevin, following up on the lab standards not provided to date.

List of 7 lab standards from the chemicals on Table 3+ which have not been provided to date:

- PFMOAA
- PF02HxA
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- PFECA G
- PES

List of 4 lab standards from the chemicals on Table 3+ which also have not been provided to date and Chemours indicates *"Analysis for these compounds is currently discontinued due to problematic performance (chromatographic retention and mass spectral interferences) in current T3+ method."*:

- DFSA
- MMF
- MTP
- PPF Acid

We have to date received only 11 of the lab standards for the chemicals on Table 3+. These need to be provided and along with an explanation of the decision regarding the 4 chemicals indicated as currently discontinued from analysis.

linda

Linda Culpepper
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Thank you for the information, Lam.

Linda

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Thank you, Lam. Including Mark, as he shared that he was reviewing your data.

Linda

Linda Culpepper

ED_005565_00009019-00011

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We will certainly welcome your suggestion for other solvent to use instead of methanol. Please let us know.

Very best Regards,
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Cc: Martin, Allen D <Allen.Martin@ncdenr.gov>; Leung, Lam-Wing H <LAM.H.LEUNG-1@chemours.com>; Sivertsen, Scott <Sivertsen.Scott@epa.gov>

Subject: ?Standards

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Kevin,

As stated in my letter of August 14, "Chemours must use a solvent based system" when providing lab standards for DEQ and EPA use.

We understand your concerns regarding stabilization. We are open to continuing our dialogue on that issue and reviewing any additional information you wish to submit. However, at this time, Chemours is directed to provide standards in a solvent.

Linda

Linda Culpepper
Director, NC DEQ Division of Water Resources

Email: linda.culpepper@ncdenr.gov
Phone: 919-707-9014

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From: Garon, Kevin P [<mailto:Kevin.Garon@chemours.com>]

Sent: Friday, October 11, 2019 10:50 AM

To: Martin, Allen D <Allen.Martin@ncdenr.gov>; Leung, Lam-Wing H <LAM.H.LEUNG-1@chemours.com>; Sivertsen, Scott <Sivertsen.Scott@epa.gov>

Subject: [External] Standards

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Hello Allen and Scott,

In my last meeting a few weeks back with Ms. Linda Culpepper, she indicated that she was still expecting Chemours to prepare and provide standards in a solvent. I believe Lam responded to both of you gentlemen and discussed on a teleconference our concern with making standards in a solvent due to the possibility/probability of some of the compounds changing due to esterification (and I have just exhausted my knowledge of chemistry so forgive me if I am not being clear).

What are your thoughts on this? We are a bit stumped on how to proceed. Lam is still working on the stabilization study to indicate the stability of our standards in water. I just am not sure what or if we need to be doing something as Ms. Culpepper has indicated to me that the request to prepare standards in a solvent still stands.

Thanks,
Kevin

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